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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,268	12/09/2003	Luying Sun	4920-104 US	4722

7590 01/05/2009

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EXAMINER	
WEINER, LAURA S	

ART UNIT	PAPER NUMBER
1795	

MAIL DATE	DELIVERY MODE
01/05/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/731,268	SUN, LUYING	
	Examiner	Art Unit	
	/Laura S. Weiner/	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 November 2008 and 08 December 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *8-16 and 22-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *8-16 and 22-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12-8-08 has been entered.

Response to Arguments

2. Applicant's arguments filed 11-20-08 have been fully considered but they are not persuasive in regard to claims 8-16, 30-33 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nishikawa et al. (JP 2000-113906, translation). This is because Nishikawa et al. teaches an electrolyte solution comprising EC and R1COO-(CH2)a-CN where a is an integer of 1-3 and R1 is an alkoxy group where the number of carbons is 1-3. Therefore when teaching C_{1-3}O-C=O-O-$(CH2)_1$-CN is exactly what is being claimed NC-CR1R2-X where X is C_{1-3}-O-C=O-O-. Therefore, the rejection stands.

The rejection of claims 8, 14-16, 29-33; 22-28 under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. (JP 2000-077096, translation and abstract) or Toriida et al. (JP 2000-243442, translation) in view of Nishikawa et al. (JP 2000-113906,

translation) still remains because applicant argues that Kobayashi et al. and Toriida et al. do not teach the claimed invention where the oxygen of the carbonate is chemically bonded to the carbon of the cyano group through no more than one carbon so the rejection should be withdrawn. In that Applicant is correct in regard to these two references, the rejection made is that it would be obvious to use one that did meet that limitation as explained below in the rejection. Therefore the rejection still stands.

Claim Rejections - 35 USC § 112

3. Claims 8-16, 29-33; 22-28 and 34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In claims 8, 22 and 34, there is no support for the nitrile being electrochemically stable us to at least about 4.2 V. There is support for the electrolyte being electrochemically stable us to at least about 4.2 V.

Claim Rejections - 35 USC § 102

Claim Rejections - 35 USC § 103

4. Claims 8-16, 30-33 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nishikawa et al. (JP 2000-113906, translation).

Nishikawa et al. teaches an electrolyte solution comprising EC *[a cyclic carbonate solvent (2)]* and Formula (V), R1'-COO-(CH2)a-CN where R1' can be an alkoxy group *[teaching Formula (Ib)]. Therefore when teaching* $C_{1-3}O$-C=O-O-$(CH2)_1$-CN *is exactly what is being claimed.* Nishikawa et al. teaches on page 3, [0013] of translation, that selecting the amount of polar solvent besides the above, and/or a cyano ethyl ether system quantity dielectric constant solvent in 5-95% by weight of the range among electrolytic solution solvent total amounts. Nishikawa et al. teaches on page 4 of translation, that the electrolyte salt was LiPF6.

Since Nishikawa et al. teaches the same electrolyte comprising a cyclic carbonate, a nitrile compound and a LiPF6 salt then inherently the same electrolyte having an ionic conductivity of greater than 1X10-3 S/cm at about –30 degrees C, having an ionic conductivity of greater than 3X10-4 S/cm at about –50 degrees C, the weight loss of the electrolyte is less than 3% after heated at 90 degrees C for 2 hours, the weight loss of the electrolyte is less than 5% after heated at 90 degrees C for 4 hours, the freezing point of the electrolyte is less than –60 degrees C and the boiling point of the nitrile higher than 120 degrees C and flash point is higher than 60 degrees C must also be obtained.

In addition, the presently claimed property of having an ionic conductivity of greater than 9X10-3 S/cm at about 25 degrees C having an ionic conductivity of greater than 1X10-3 S/cm at about –30 degrees C, having an ionic conductivity of greater than 3X10-4 S/cm at about –50 degrees C, the weight loss of the electrolyte is less than 3% after heated at 90 degrees C for 2 hours, the weight loss of the electrolyte is less than

5% after heated at 90 degrees C for 4 hours, the freezing point of the electrolyte is less than –60 degrees C and the boiling point of the nitrile higher than 120 degrees C and flash point is higher than 60 degrees would have obviously have been present once the Nishikawa et al. product is provided. *In re Best, 195 USPQ 433 (CCPA 1977).*

Claim Rejections - 35 USC § 103

5. Claims 8, 14-16, 29-33; 22-28; 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. (JP 2000-077096, translation and abstract) or Toriida et al. (JP 2000-243442, translation) in view of Nishikawa et al. (JP 2000-113906, translation).

Kobayashi et al. teaches an electrolyte battery comprising a positive electrode comprising a lithium content multiple oxide such as LiCoO2, and a negative electrode which includes a carbon material and a separator. Kobayashi et al. teaches an electrolyte comprising LiPF6, a 60% CH3OCOOC2H4CN compound in Example 8, and 40% EC. Kobayashi et al. teaches that the electrolyte can comprise LiPF6, LiBF4, etc or two or more sorts can be mixed.

Toriida et al. teaches that the electrolyte comprises LiBF4, LiPF6, etc. Toriida et al. teaches that the electrolyte contains a solvent containing 0.01-70% by weight of cyanoethyl group R(O)nCOOCH2CH2CN and contains a cyclic carbonate. The negative electrode includes metal lithium, carbon material and a cathode comprising a multiple oxide of lithium such as LiCoO2. Toriida et al. teaches in Example 1, that the electrolyte comprises PC:DEC=55:45 and 1 M of LiPF6.

Kobayashi et al. or Toriida et al. teaches the claimed invention except does not specifically teach that the electrolyte salt comprising a mixture of 50:50 LiPF6 and LiBF4.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use both salts, LiPF6 and LiBF4 in the electrolyte taught by Kobayashi et al. or Toriida et al. because it is prima facie obvious to combine two compositions each of which is taught by prior art to be useful for the same purpose in order to form a third composition that is to be used for the very same purpose. See *In re Kerkhoven, 205 USPQ 1069; In re Susi, 169 USPQ 423.*

Kobayashi et al. or Toriida et al. teaches the claimed invention except does not teach that the electrolyte comprises CH3OCOO**CH2**CN instead of CH3OCOO**C2H4**CN.

Nishikawa et al. teaches an electrolyte solution comprising EC and Formula (V), R1'-COO-(CH2)a-CN where a can be 1, 2 or 3 and R1' can be an alkoxy group where the number of carbons is 1-3 *[teaching Formula (Ib)]*. [*Therefore teaching the claimed compound]. $C_{1-3}O$-C=O-O-$(CH2)_1$-CN* Nishikawa et al. teaches on page 3, [0013] of translation, that selecting the amount of polar solvent besides the above, and/or a cyano ethyl ether system quantity dielectric constant solvent in 5-95% by weight of the range among electrolytic solution solvent total amounts. Nishikawa et al. teaches on page 4 of translation, that the electrolyte salt was LiPF6.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use R1'-COO-(CH2)-CN taught by Nishikawa et al. instead of R1'-COO-(CH2)2-CN taught by Kobayashi et al. or Toriida et al. because Nishikawa et al. teaches that these nitrile compounds are known to be used.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to /Laura S. Weiner/ whose telephone number is 571-272-1294. The examiner can normally be reached on M-F (6:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Laura S Weiner/
Primary Examiner
Art Unit 1795

January 4, 2009